

# Model 802

Spectrol

## 1 - 13/16" (46mm) Ten Turn Wirewound Precision Potentiometer



### FEATURES

- 20Ω to 200KΩ
- Bushing Mount and Servo Mount

ELECTRICAL SPECIFICATIONS		
PARAMETER	STANDARD	SPECIAL
Total Resistance Tolerance: 200Ω and above Below 200Ω	20Ω to 200KΩ ± 3% ± 5%	500KΩ ± 1% ± 3%
Linearity (Independent) 20 to 50Ω 50 to 200Ω 200 to 5KΩ 5K and above Ω	STANDARD ± 0.25% ± 0.25% ± 0.25% ± 0.25%	SPECIAL ± 0.15% ± 0.10% ± 0.05% ± 0.025%
Noise	100Ω ENR	
Electrical Rotation	3600° + 4° - 0°	
Power Rating Section 1 Each Additional Sections:	5.00 watts 70°C ambient, derated to zero at 125°C 75% of the rating of section 1 (3.8 watts at 70°C)	
Insulation Resistance	1,000MΩ minimum, 500VDC	
Dielectric Strength	1,000V <sub>RMS</sub> , 60Hz	
Absolute Minimum Resistance	Linearity x total resistance or 0.5Ω, whichever is greater	
End Voltage	Linearity x total applied voltage for total resistance above 20Ω, 2.0% of total applied voltage for 20 and below	
Phasing (CCW End Points)	Additional sections phased to section 1 within ± 1°	
Taps (Extra)	108 available as special, standard tolerance ± 1°	

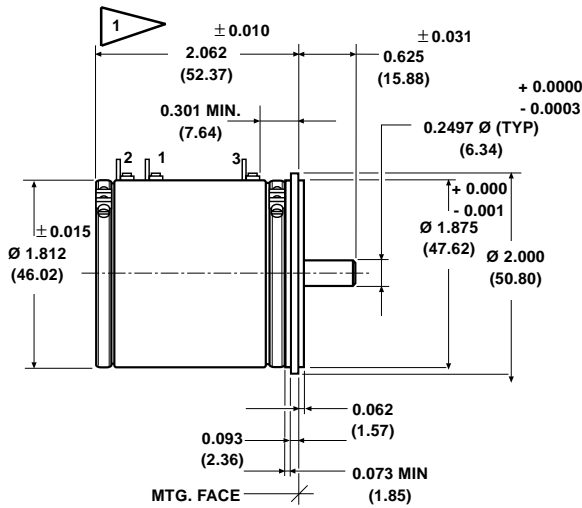
ORDERING INFORMATION			
Model 802 can be ordered from this data sheet with a variety of alternate characteristics, as shown above. For most rapid service on your order, please state:			
<b>802</b>	<b>1</b>	<b>3</b>	<b>XXX</b>
MODEL	MOUNTING	RESISTANCE OF EACH SECTION	SECTIONS IN GANG
	1. Servo 2. Screw 3. Bushing	Beginning with the section nearest the mounting end	
Example: Model 802, Screw 15K/1500Ω/50Ω, 3 section Example: Model 802, Bushing, 10K, Single section Example: <b>802 - 1 - 3 - XXX</b>			
Other characteristics will be standard as described on this data sheet. If special characteristics are required, such as: special linearity tolerance, special resistance tolerance, extra taps, non-linear functions, etc., please state these on your order and allow additional lead time for delivery.			

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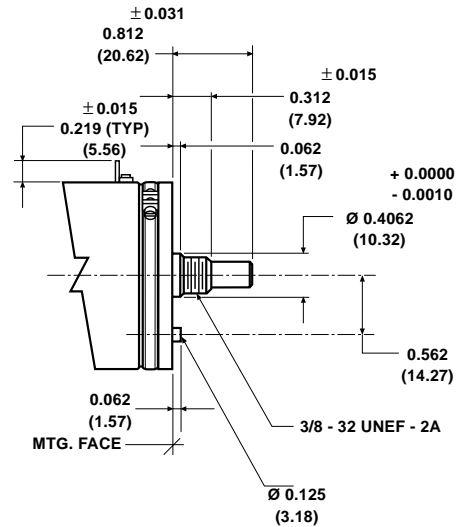
Spectrol

DIMENSIONS in inches (millimeters)

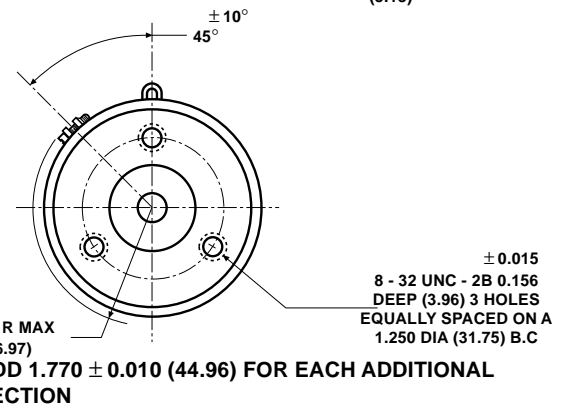
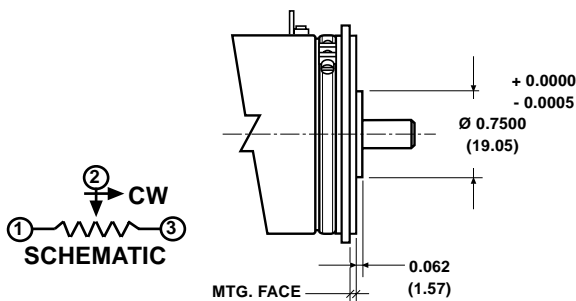
### SERVO MOUNT



### BUSHING MOUNT



### SCREW MOUNT



TOLERANCES: UNLESS OTHERWISE NOTED  
DECIMALS ± 0.005 ANGLES ± 2°

MECHANICAL SPECIFICATIONS			
PARAMETER			
Rotation	3600° + 10° - 0°		
Bearing Type	<b>SERVO</b> Ball Bearing	<b>BUSHING</b> Sleeve	<b>SCREW</b> Ball Bearing
Torque (Maximums)	<b>MAX STARTING</b>		<b>MAX RUNNING</b>
Servo or Screw Section 1	1.20 oz - in (86.4gm - cm)		0.80 oz - in (57.6gm - cm)
Bushing Section 1	1.75 oz - in (126.0gm - cm)		1.25 oz - in (90.0gm - cm)
Each additional section	0.80 oz - in (57.6gm - cm)		0.60 oz - in (43.2gm - cm)
Mechanical Runouts (Maximums):	<b>SERVO OR SCREW</b>		<b>BUSHING</b>
Shaft (TIR/in)	0.002 in (0.05cm)		0.002 in (0.05cm)
Pilot Dia Runout(TIR)	0.002 in (0.05cm)		0.002 in (0.05cm)
Lateral Runout (TIR)	0.003 in (0.08cm)		0.005 in (0.13cm)
Shaft End Play	0.005 in (0.13cm)		0.005 in (0.13cm)
Shaft Radial Play	0.002 in (0.05cm)		0.003 in (0.08cm)
Weight:			
Single Section	5.5 oz (156gm)		
Each Additional Section	3.7 oz (105gm)		
Stop Strength	1.000 oz - in, static (72Kgm - cm)		
Ganging	3 sections maximum terminal alignment, added sections within ± 10° of section 1 terminals		
Moment of Inertia	15gm - cm <sup>2</sup> per section maximum		

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MATERIAL SPECIFICATIONS	
Housing	Glass filled thermoset plastic
Lids	Aluminum, anodized
Shaft	Stainless steel, non-magnetic, non-passivated
Terminals	Brass, plated for solderability
Clamp Ring	Stainless steel
Bushing Mount Hardware	Internal tooth Steel, nickel plated Brass, nickel plated
Lockwasher:	
Panel Nut:	

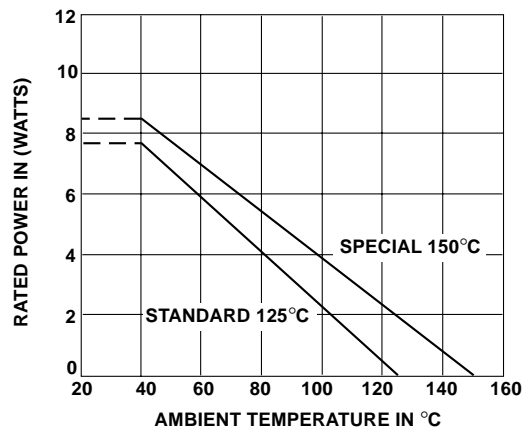
MARKING	
<b>Unit Identification</b>	Units shall be marked with Spectrol name and Model No, resistance and resistance tolerance, linearity, terminal identification, and date code

ENVIRONMENTAL SPECIFICATIONS	
Vibration	15g thru 2000CPS
Shock	50g
Salt Spray	96 Hours
Rotational Life	2 million shaft revolutions
Load Life	900 Hours
Operating Temperature Range	- 55°C to + 125°C
Moisture Resistant	-

## POWER RATING CHART

(Ratings for cup No. 1.

Additional cups 75% of values shown)



## RESISTANCE ELEMENT DATA

STANDARD RESISTANCE VALUES (Ω)	RESOLUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 70°C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
20	0.044	0.009	500	10.0	800
50	0.027	0.014	316	15.8	800
100	0.024	0.024	224	22.4	800
200	0.028	0.056	158	31.6	180
500	0.023	0.115	100	50.0	20
1K	0.018	0.182	70.7	70.7	20
2K	0.020	0.402	50.0	100	110
5K	0.015	0.754	31.6	158	20
10K	0.013	1.229	22.4	224	20
20K	0.010	1.970	15.8	316	20
50K	0.007	3.686	10.0	500	20
100K	0.007	6.507	7.07	707	20
200K	0.005	6.929	5.00	1,000	20
500K	0.004	19.987	2.00	1,000	20